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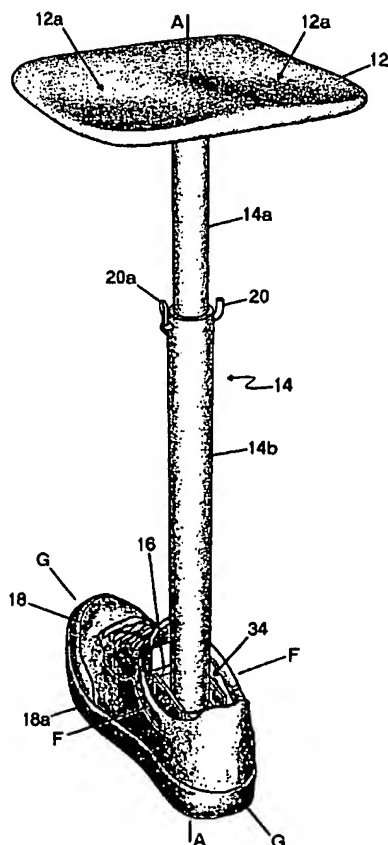
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[Continued on next page]

(54) Title: POST-MOUNTED SEAT HAVING NON-SLIP FOOT



(57) Abstract: A post-mounted seat includes a seat mounted on a post, wherein the post includes length adjusting means for selectively adjusting the length of the post. The seat may be pivotally mounted at an upper first end of the post. A shoe form may be pivotally mounted at the lower second end of the post opposite the upper first end. The seat and the shoe form advantageously pivot in a common plane. The shoe form may be adapted for mounting in conventional shoes so that a long axis of the shoe and the shoe form lie in the common plane.



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## POST-MOUNTED SEAT HAVING NON-SLIP FOOT

Field of the Invention

5                    This invention relates to the field of seats for use at spectator events and in particular to single pole pedestal seats or stools.

Background of the Invention

10                    In the prior art, applicant is aware of German Patent No. DE3612201 published October 15, 1987 for a Device for Supporting the Posterior of Standing Persons naming Franz Biggel as inventor. The Biggel device is described in the English translation of the patent abstract as a device for supporting the posterior of standing persons in which the lower region of a supporting tube slides in a spherical bearing shell wherein, to lock the supporting tube in  
15 any unloaded position, a guiding and locking ball is pressed by means of a compression spring against a housing shell adapted to the shape of the ball. What is neither taught nor suggested by Biggel, and which is an object of the present invention to provide, is the use of a shoe form such as a plate pivotally mounted to the bottom of a seat post so as to provide for mounting of various shoes as supplied for example by the user onto the shoe form thereby allowing the user  
20 to adapt the shoe to optimize the amount of friction for any given ground surface.

Summary of the Invention

25                    In summary, the post-mounted seat of the present invention includes a seat mounted on a post, wherein the post includes length adjusting means for selectively adjusting the length of the post. The seat may be pivotally mounted at an upper first end of the post. A shoe form may be pivotally mounted at the lower second end of the post opposite the upper first end. The seat and the shoe form advantageously pivot in a common plane. The shoe

form may be adapted for mounting in conventional shoes so that a long axis of the shoe and the shoe form lie in the common plane.

5 The pole may be a telescoping pole, and the means for adjusting the length of the post may include an array of apertures along a first portion of the post, where the first portion telescopically co-axially slides into and along a second portion of the post.

10 The second portion of the post includes selectively operable locking means for releasably locking the first portion partially in the second portion. The locking means may include at least one aperture in the second portion, alignable with the array of apertures on the first portion as the first portion is slid in relative to, the second portion. A pin may be provided for insertion through the at least one aperture and an aligned aperture of the array of apertures.

15 The lower second end of the post may intersect the shoe form substantially halfway along the shoe form. The shoe form may be a plate, which may be rigid or resilient. The plate may be insole or footbed (collectively referred to herein as a footbed) shaped so as to snugly fit into a shoe on top of the inner sole of the shoe. The shoe form may include a shoe and means for mounting a lowermost end of the lower second end of the post into the shoe.

20 The seat may have depressions in an upper surface thereof shaped for cupping the posterior cheeks of a user. The seat may pivot on pivoting means mounted substantially centered under the seat. An ankle joint may be mounted between the post and the shoe form to provide the pivoting of the shoe form relative to the post.

25 Brief Description of the Drawings

Figure 1 is, in front perspective view, the post-mounted pedestal seat of the present invention.

Figure 2 is, in rear perspective view, the pedestal seat of Figure 1 with the shoe removed.

Figure 2a is an alternative embodiment of the pedestal seat of Figure 2.

Figure 3 is, in side elevation view, the pedestal seat of Figure 1 shown in use.

Figure 3a is an alternative embodiment of the pedestal seat of Figure 3.

Figure 4 is the pedestal seat of Figure 1 in front elevation view.

Figure 5 is the pedestal seat of Figure 1 in rear elevation.

Figure 6 is the pedestal seat of Figure 1 in plan view.

Figure 7 is the pedestal seat of Figure 1 in bottom view.

#### Detailed Description of Embodiments of the Invention

As best seen in Figures 1 and 2 in which like parts have corresponding reference numerals in each view, the pedestal seat 10 according to the present invention includes a rigid seat 12 mounted to a telescoping post or pole (collectively a post) 14. As seen in Figure 2a, seat 12 may be pivotally mounted on post 14. Shoe 18 may be flat soled or otherwise have a grip-enhancing tread or under-surface. Post 14 may generally bisect plate 16 halfway along its length to distribute downward pressure evenly over plate 16, but this is not intended to be limiting. Telescoping post 14 is pivotally mounted to a shoe form such as foot plate 16, itself mountable into a shoe 18 so as to conform to the shape of the footbed in the shoe. Telescoping post 14 has in the illustrated embodiment, which is not intended to be limiting, an upper post section 14a snugly slidably mounted into an upper end of lower post

section 14b so as to provide for telescopic elongation and shortening of post 14 along its longitudinal axis A. The length of telescoping post 14 may be adjusted by a user removing pin 20 from a pair of apertures 22 in the upper end of lower post section 14b and one aperture 24 of an array of aligned apertures 24 extending along at least partially the length of upper post section 14a. Thus with the length of telescoping post 14 adjusted to a desired length with pin 20 removed, apertures 22 are aligned with a corresponding pair of holes 24 and pin 20 inserted therethrough to releasably lock the post in the desired length. A cotter pin 20a may be releasably inserted through a corresponding pin hole 20b in pin 20 to secure pin 20 when mounted through apertures 22 and holes 24.

Seat 12 is pivotally mounted to the upper end of upper post section 14a by a shaft or pin 26 mounted through coaxially aligned apertures in rigid brackets 28 rigidly mounted to the underside of seat 12, shaft 26 extending through a corresponding pair of apertures in the upper end of upper post section 14a. Seat 12 is thus rotatable in direction B about axis of rotation C.

Seat 12 may as illustrated be provided with a pair of gentle concavities or depressions 12a for supporting the posterior cheeks of a user 30 when supporting a user as seen in Figure 3 leaning against pedestal seat 10 so that longitudinal axis A of post 14 bisects the user's posterior cheeks. Thus user 30, shown in dotted outline, may rest against pedestal seat 10 for example while watching a sporting event or the like, by leaning backwards against pedestal seat 10 with user's feet 30a firmly planted on ground surface 32 and the user's posterior cheeks 30b resting in the conformational depressions 12a, inclining post 14 at angle  $\alpha$ . Sole 18a of shoe 18 is also firmly planted on ground surface 32. A virtual tripod is formed by post 14 and the user's legs 30c with the vertex of the tripod forming an included angle illustrated as angle  $\beta$ . Thus a weight W of user 30 imparts a compressive force  $F_1$  along axis A of post 14 and a slip force  $F_2$  urging shoe 18 in direction D slipping over ground surface 32. The vector component  $F_1$  of weight W is supported by post 14 in compression between seat 12 and shoe 18 thereby taking for example up to approximately one third of the weight of the user

which would otherwise be born by the user's legs if the user was standing unsupported. Sole 18a is thus advantageously adapted to frictionally resist slipping in direction D along ground surface 32.

5           In order not to slip, the frictional resistance of sole 18a on ground surface 32 must be at least equal and opposite to slip force  $F_2$ . Thus, sole 18a may be a crepe sole, or may be of other non-slip sole varieties well known in the art and commonly available by the use of for example a discarded running shoe or sport cleat or hiking shoe as would be readily available to a consumer for mounting onto foot plate 16. The greater the slip resistance of sole  
10   18a, the greater the weight bearing capacity of pedestal seat 10. Thus, by the choice of shoe best adapted to grip a particular surface 32, which would be best known to a user attending at a particular spectator event, the amount of resistive force provided by sole 18a may be maximized. Depending on the shoe, that is the style of grip provided by sole 18a, shoe 18 may provide better slip resistance either facing rewardly, as in Figure 3, or forwardly as in Figure  
15   3a. One example of an appropriate shoe 18 may be a user supplied soccer cleat if the sporting event is a soccer game and the user will be standing on the side lines on a potentially slippery grass field. The user may select a shoe having thereon the logo of the team he supports. For a given resistive capability of sole 18a on surface 32, either a greater weight may be supported, that is, a heavier user 30, or the inclination of post 14 may be increased so as to reduce angle  $\alpha$   
20   and increase angle  $\beta$  thereby potentially transferring more of the weight of user 30 onto post 14 leaving less of a weight be born by the user's legs.

          The capability of sole 18a to resist slippage on ground surface 32 is also maximized by the use of a pivoting ankle joint 34 at the lower end of lower post section 14b  
25   where post 14 is pivotally mounted to foot plate 16. Ankle joint 34 advantageously at least provides for rotation in direction E about axis of rotation F, although this is not intended to limiting as a two or three degree of freedom joint may also be employed by the use, for example, of a ball and socket joint. In the illustrated embodiment, a one degree of freedom joint is provided by pin or shaft 36 mounted through apertures in a pair of rigid brackets 38

and corresponding holes through the lower end of lower post section 14b. Brackets 38 are rigidly mounted onto foot plate 16. In the illustrated embodiment, axes of rotation C and F are orthogonal to the common plane containing the longitudinal axis A of post 14 and the longitudinal axis G of foot plate 16. Thus slight side-to-side shifting of the weight of user 30 when supported on seat 12 does not result in rotation of seat 12 relative to post 14 but rather is borne by a resistive moment the result of shaft 26 journalled through brackets 28. However, a forward or back shifting of the weight of user 30 on seat 12 will result in the rotation of seat 12 in direction B so as to more comfortably adjust the position of seat 12 relative to cheeks 30b. The constraining of the rotation of foot plate 16 about axis F so that foot plate 16 rotates in the same plane as seat 12, enhances the stability of the support provided by pedestal seat 10 to user 30 although on uneven or undulating ground, a two or more degree of freedom ankle joint 34 may provide for increased slip resistance of sole 18a on ground surface 32.

Foot plate 16 although illustrated as a solid rigid plate, may be provided as for example a shoe form which in one embodiment may be adjusted in size to accommodate different size shoes 18 provided by a user. The shoe form may simulate or include a shoe. Alternatively, foot plate 16 may be somewhat resilient so as to fit a wide range of shoes 18 or may be adapted for trimming by a user to fit a foot plate 16 to a particular foot size, for example the foot size of the user so that the user may employ the user's own shoes for mounting onto foot plate 16. In one embodiment, foot plate 16 may be rigidly mounted into shoe 18 for example by adhesive bonding, screwing or bolting of the bottom of foot plate 16 onto the inner surface of sole 18a.

In one preferred embodiment, as seen in Figure 2a the underside of seat 12 is provided with a means for hanging the entire pedestal seat from, for example, a hook or peg on a wall. Thus, a curved channel or depression or loop or aperture 40 may be formed in the underside of seat 12 so that, with seat 12 rotated approximately to the vertical relative to post 14, aperture 40 may be used to hang pedestal seat 10 from the hook or peg on the wall. Further, a rigid arm 42 may be pivotally mounted to post 14. Arm 42 may be stored generally



flush with post 14 within a corresponding channel or depression in the post, and may be pivoted outwardly about its base so as to protrude upwardly when the seat is in use. An umbrella may then be mounted onto arm 42.

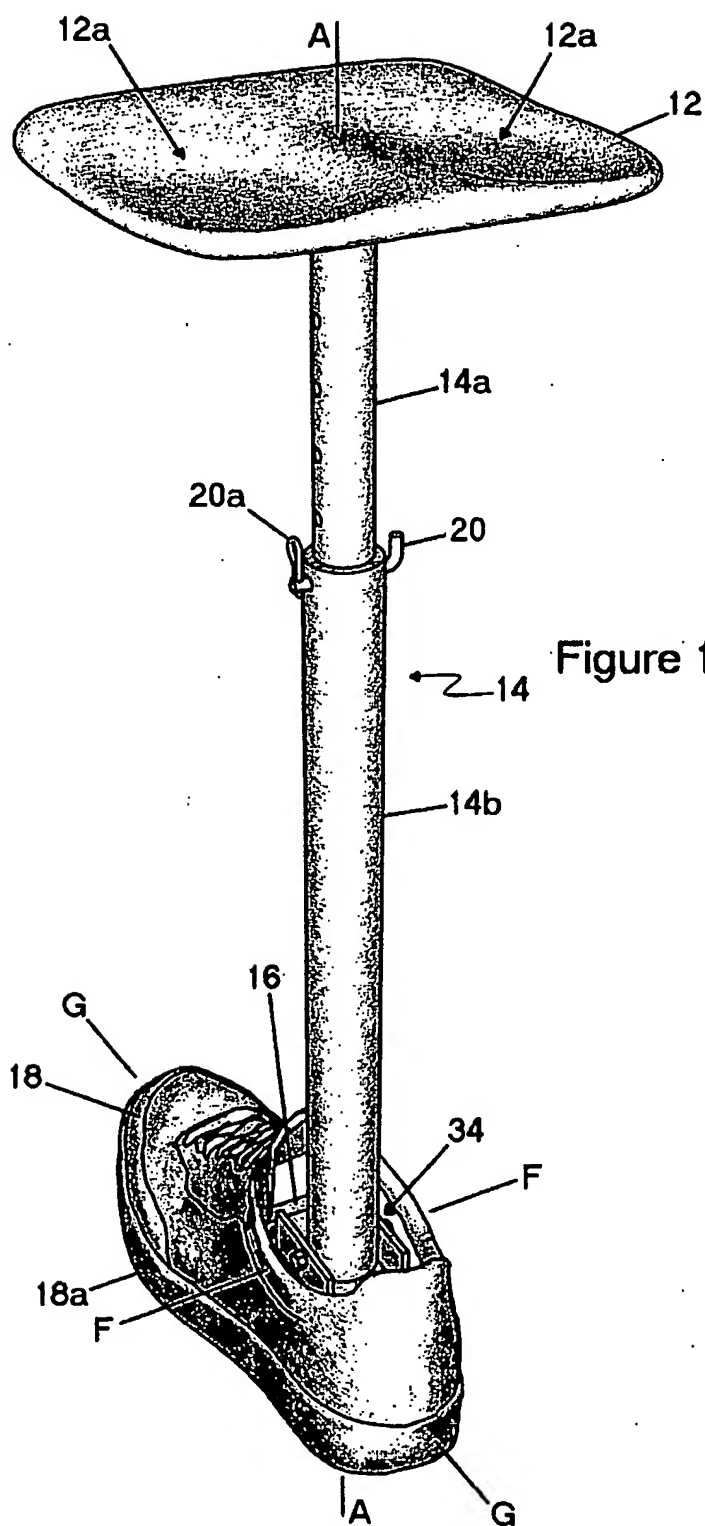
- 5           As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. Accordingly, the scope of the invention is to be construed in accordance with the substance defined by the following claims.

## WHAT IS CLAIMED IS:

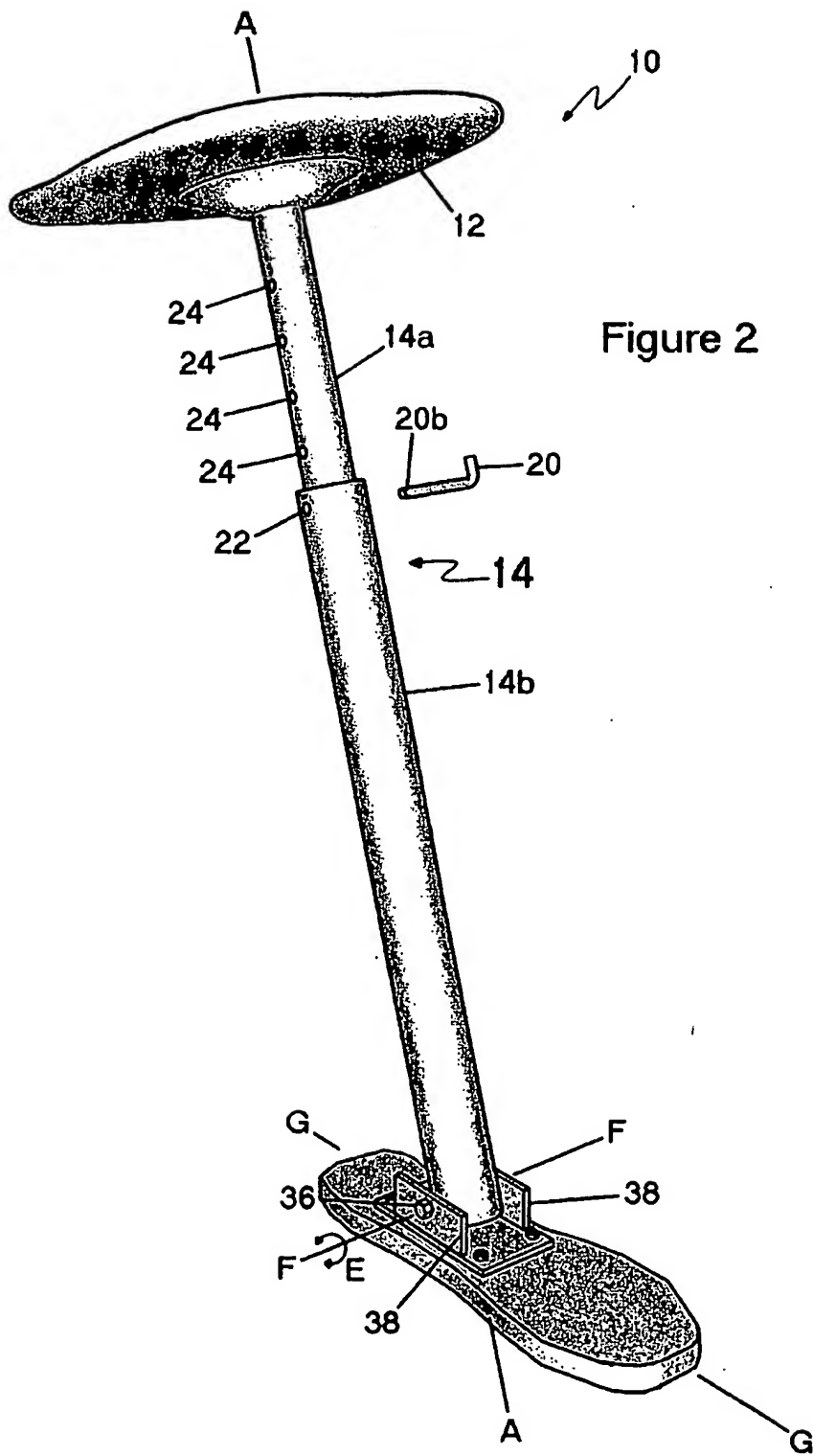
1. A post-mounted seat comprising a seat mounted on a post wherein said post includes length adjusting means for selectively adjusting the length of said post, said seat  
5 pivotally mounted at an upper first end of said post, a shoe form pivotally mounted at the lower second end of said post opposite said upper first end.
2. The device of claim 1 wherein said seat and said shoe form pivot in a common plane.
- 10 3. The device of claim 2 wherein said shoe form is adapted for mounting in conventional shoes so that a long axis of the shoe and said shoe form lie in said common plane.
4. The device of claim 3 wherein said pole is a telescoping pole.
- 15 5. The device of claim 4 wherein said means for adjusting the length of said post includes an array of apertures along a first portion of said post, said first portion telescopically co-axially sliding into and along a second portion of said post, said second portion of said post including selectively operable locking means for releasably locking said first portion partially in said second portion.
- 20 6. The device of claim wherein said locking means includes at least one aperture in said second portion, alignable with said array of apertures as said first portion is slid in relative to, said second portion, and a pin for insertion through said at least one aperture and an aligning aperture of said array of apertures.
- 25 7. The device of claim 6 wherein said lower second end of said post intersects said shoe form substantially half-way along said shoe form.
8. The device of claim 1 wherein said shoe form is a plate.

9. The device of claim 8 wherein said plate is insole shaped so as to snugly fit into a shoe on top of the inner footbed of the shoe.
- 5 10. The device of claim 1 wherein said seat has depressions in an upper surface thereof shaped for cupping the posterior cheeks of a user.
11. The device of claim 10 wherein said seat pivots on pivoting means mounted substantially centered under said seat.
- 10 12. The device of claim 1 further comprising an ankle joint, wherein said ankle joint is mounted between said post and said shoe form to provide said pivoting of said shoe form relative to said post.
- 15 13. The device of claim 12 wherein said ankle joint has one degree of freedom.
14. The device of claim 1 wherein said shoe form includes a shoe and means for mounting a lowermost end of said lower second end of said post into said shoe.
- 20 15. The device of claim 14 wherein said means for mounting is a foot plate shaped to correspond to a footbed of said shoe.
16. The device of claim 8 wherein said plate is resilient.
- 25 17. The device of claim 1 wherein said shoe form is resilient.

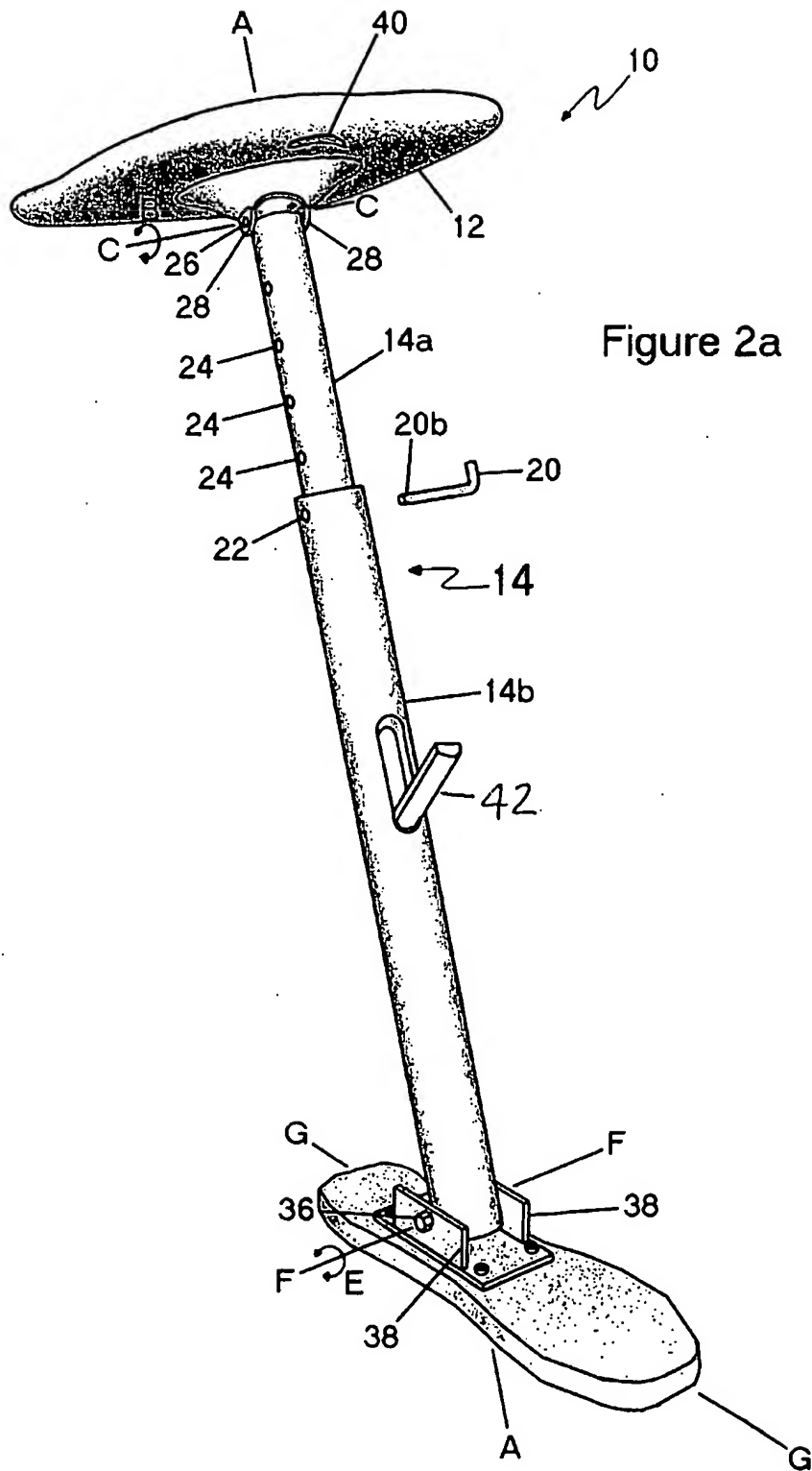
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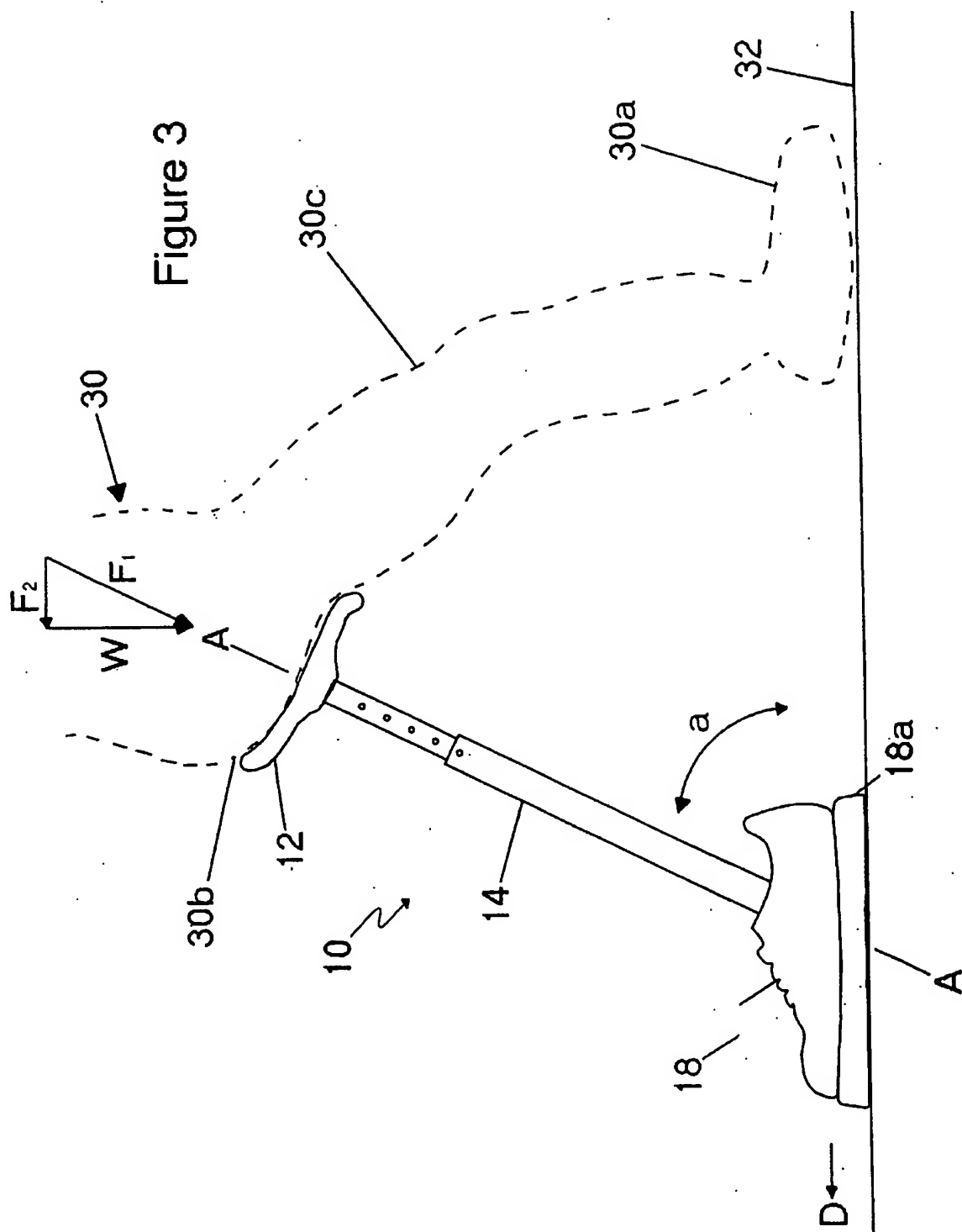
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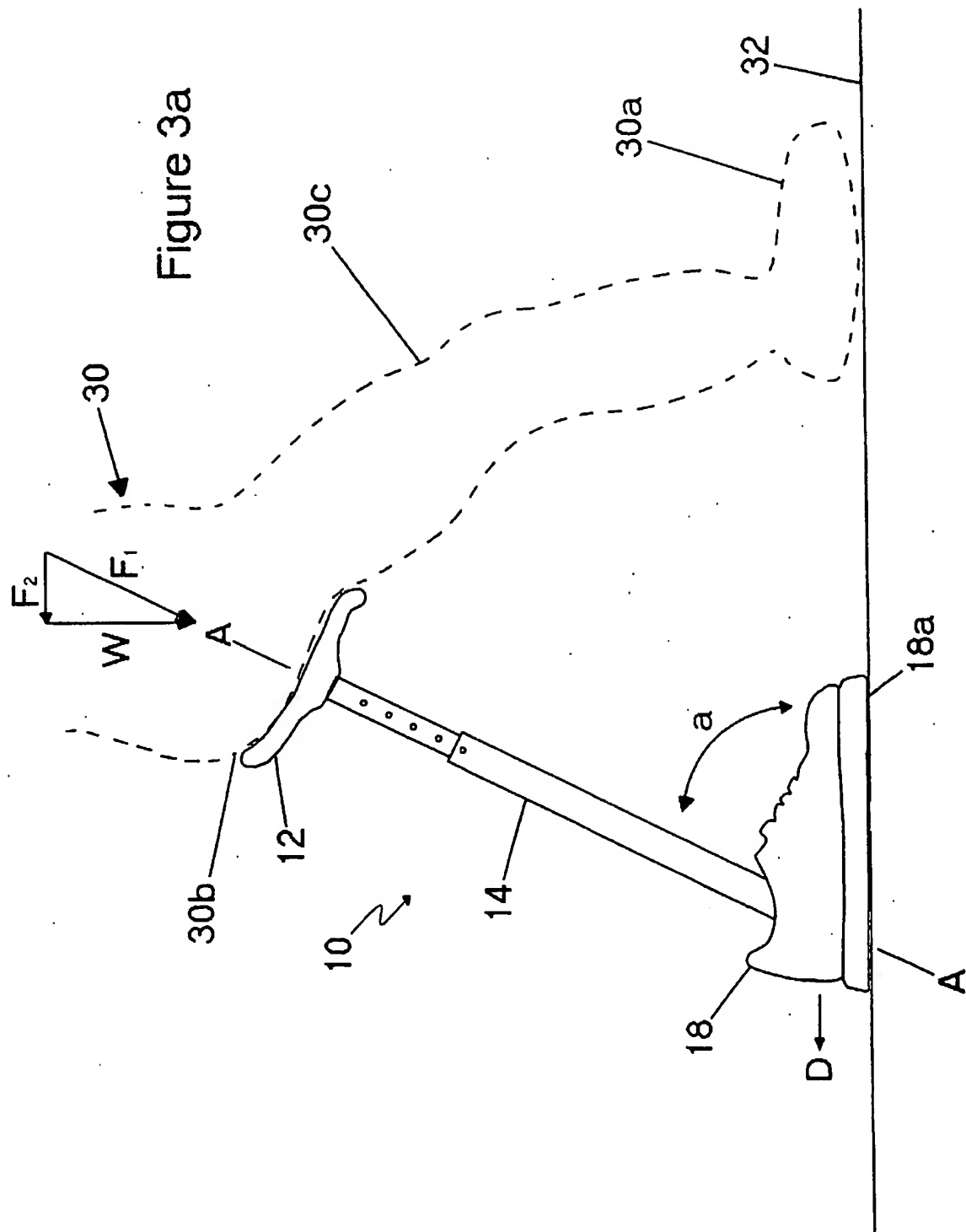
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Figure 6

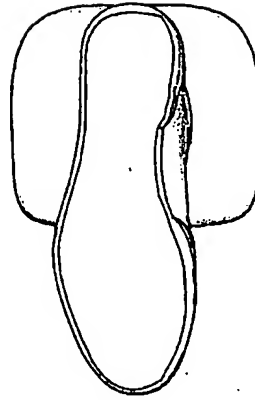


Figure 7

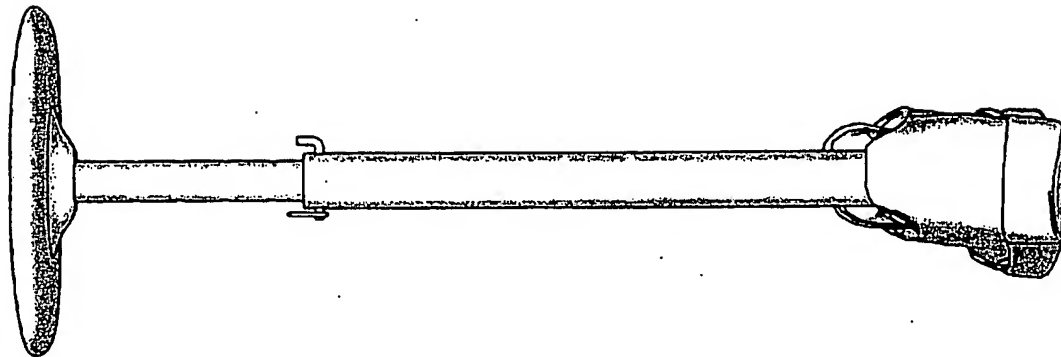


Figure 5

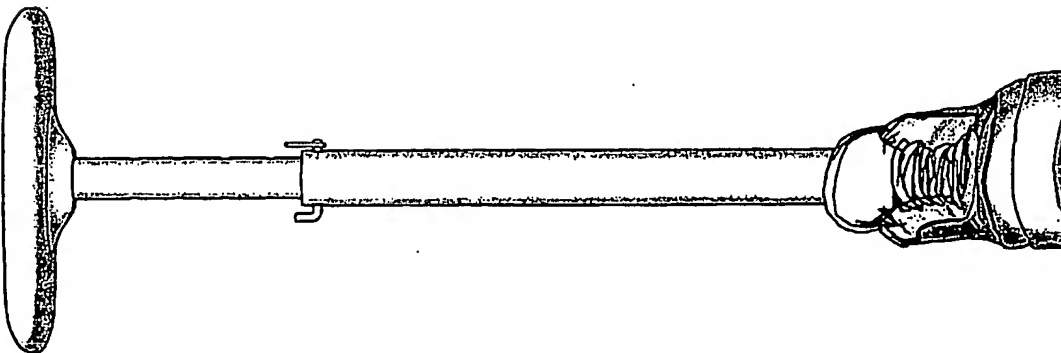


Figure 4

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 03/01785

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 A47C9/02 A47C7/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 664 482 A (PERRIN-GUIGUET) 17 January 1992 (1992-01-17) page 7, last paragraph -page 8, paragraph 1 page 12, last paragraph figures	1, 2, 6
A	DE 90 06 582 U (MILOWSKI) 29 May 1991 (1991-05-29) the whole document	1, 6, 8
A	WO 01 65976 A (FINGER LAKES) 13 September 2001 (2001-09-13)	
A	US 4 676 551 A (MCDOWELL) 30 June 1987 (1987-06-30)	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

2 March 2004

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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